



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR 6 —CHART INFORMATION

SECTOR 6

SOUTHEAST COAST OF AFRICA—PANGANI BAY TO QOORIGA KISMAAYO

Plan.—This sector describes Pemba Channel, Pemba Island, and the SE coast of Africa from Pangani Bay N to Qooriga Kimaayo, a distance of about 368 miles.

Pemba Channel

6.1 Pemba Channel (5° 06'S., 39° 21'E.) lies between Pemba Island and the reefs and islets that front the mainland shore of Africa. The channel has a least width of 18 miles between Ras Kigomasha (4° 53'S., 39° 41'E.) and the mainland NW; the channel is deep throughout.

Tides—Curr ents.—The N coastal current divides and follows the E and W shores of Pemba Island with a velocity that varies from about 1 knot in the Northeast Monsoon to 3 knots in the Southwest Monsoon. Heavy tide rips occur where the current divides, especially when the ebb current runs out of Upembe Passage. Tide rips and occasionally overfalls occur off Matumbe Makupa (off the SW side of the island) and for a distance of 2 miles N. The tidal currents run strongly in practically all the gaps that form entrances to the harbors.

There is a constant N current in Pemba Channel. In mid channel its direction is that of the axis of the channel and its velocity varies from 2 to 4 knots in the Southwest Monsoon to 0 to 3 knots in the Northeast Monsoon. Near Pemba Island there is less current than in mid-channel, and the current, when at its greatest strength, frequently causes ripples that resemble breakers. The prevailing current is influenced by the tidal current, but it is only near the NW coast of Pemba Island that it is overcome and reversed by the S flood current. Off Uvinje Island, near the middle of the W coast of Pemba Island, the tidal currents meet and cause a confused sea that is sometimes dangerous to boats.

The current is very slightly felt inside the reefs and along the shore, but is sufficiently strong to accelerate the E tidal current through the Wasin Channel to velocities between 1.5 and 2.5 knots at springs, while the opposite tidal current, which is that of the rising tide, either neutralizes or slightly overcomes it.

Strong tide rips are encountered off the outlying islands and reefs.

About 10 miles offshore from Mombasa to Kilifi River the current runs NE at rates from 2 to 4 knots during the Southwest Monsoon, and from 1 to 2 knots in the Northeast Monsoon, but with less strength inshore near the reef.

In the vicinity of Ras Chiambone, or between it and Lamu the NE and SW currents generally meet during the Northeast Monsoon, and produce a current setting to SE. The limits of the place of meeting depend on the state of the monsoon and other circumstances.

The alternate monsoons are strong in the neighborhood of the Juba Islands and Kismaayo, and the currents run with them. From November to April, NE winds prevail and there is then a SW current of 2 knots, usually at its strongest in January and February.

Observations in January, 1895 extending over a week showed that at 22 miles E of Kismasay Island the current had continuous velocities of 3.5 to 4 knots in a 250° direction.

From April to November the winds and current are reversed, the latter running NE, or nearly parallel with the trend of the coast, with a velocity of 2 to 3.5 knots.

Directions.—The E side of the channel is safer than the W side, as the reefs extend but a short distance from Pemba Island, less current is experienced, and the land is nearer as a guide to the navigator. On the other hand, Pemba Island is frequently enveloped in rain squalls and clouds when the W side of the channel is clear.

A vessel approaching from the N and being able to make Pemba Island by daylight is advised to steer for Ras Kigomasha, the NW extremity, and to keep along the Pemba shore as far as Mesali Island about 23 miles S of Ras Kigomasha. Then make good a course to pass 1 mile W of Mwana wa Mwana Island, allowing leeway according to the monsoon.

With the aid of Ras Kigomasha Light there is nothing to prevent a vessel approaching from the N from passing through Pemba Channel by night if the weather is tolerably clear. Even should the light not be seen when expected, the island may be approached from that direction at a moderate speed, sounding continuously, though it may be more prudent under such circumstances to keep well outside for the night and run in at daylight.

A steamer proceeding N from Zanzibar through Pemba Channel should shape a course direct for Ras Kigomasha from abreast of Mwana wa Mwana Island, this allows for the strong N current and leads clear through this channel.

Pemba

6.2 Pemba (5° 10'S., 39° 46'E.) lies 23 miles NNE of Zanzibar Island and 21 miles E of the African mainland. The numerous hills do not exceed 91m in height and are covered with luxuriant vegetation.

Caution.—A good lookout should be kept when entering any of the anchorages in Pemba Island, as it is possible that small uncharted dangers may exist. The best time for entering is when the sun is in a favorable position; but the water is sometimes muddy, and the shoals under such conditions are not always discernible. The bearings of mangrove points must be used with caution, as the points themselves are liable to grow outward.

6.3 Pemba—East coast.—The E side of Pemba Island is rather low, and should be approached with care at night, but there does not appear to be any danger beyond the fringing coast reef, which is steep-to and nowhere extends so much as 1 mile offshore. At 2 miles from the shore no soundings have anywhere been obtained with the hand lead.

Ras Upembe (5° 28'S., 39° 43'E.), the SE extremity of Pemba Island, is a bold, cliffy point. It is clear of bushes near its extremity and rises from an elevation of 4.5 to 6.1m near the sea to 22m at a distance of about 0.2 mile inland. A small sand beach on its W side is conspicuous from the SW. Between Ras Upembe and Mtangani, a narrow inlet 7 miles NE, the coast consists of overhanging coral cliffs 5m high, thickly covered with trees; the sea always breaks on the coastal reef.

Mchengangazi (5° 06'S., 39° 52'E.) is an inlet 17 miles N of Mtangani. The coast consists of low overhanging coral cliffs covered with trees and bushes to within a few meters of their edges; numerous small creeks flow into the sea along this area.

Ras Kiuyu (4° 53'S., 39° 52'E.), the NE extremity of Pemba, is a rocky promontory covered with bush about 6m high. Rocky ground, with coral heads, extend about 1 mile offshore 1.2 miles SE of the point. These coral heads do not break and it is advisable to give the area a berth of at least 1.5 miles.

6.4 Pemba—South and west sides.—Between Ras Upembe and **Mkoani** (5° 22'S., 39° 39'E.), a village situated near the coast 8 miles NW, the SW coast of Pemba is fronted by an extensive detached reef, which dries in places; the sea always breaks on the outer edge of this steep-to reef.

Panza (5° 28'S., 39° 38'E.) is the largest and farthest SE of a group of islands, located on the reef described above.

Ras Miugani, the S extremity of Panza, is a bold coral cliff 12m high, lying 0.1 mile within the edge of the reef; there is a remarkable white sand beach on its W side.

Matumbe Makupa (5° 24'S., 39° 34'E.), marked by a light, is situated 6.7 miles NW of Ras Miugani; it is the farthest W of the group of islands on the above drying reef.

6.5 Port Mkoani (5° 21'S., 39° 39'E.) (World Port Index No. 47015) is situated abreast the village of that name. The port contains a small natural harbor.

Tides—Curr ents.—A current of less than 1 knot sets N during the S Monsoon, and S during the NW Monsoon. Tidal currents set S on the flood and N on the ebb, attaining a maximum velocity of about 1 knot.

Depths—Limitations.—Vessels up to 6,000 dwt can be accommodated, but there is a limiting draft of 4.9m in the fairway. The main wharf is on the S side of the jetty with a maintained depth of 8m along its whole length. The secondary wharf is on the N side of the jetty with a maintained depth alongside of 8m. It has been reported (1992) that a long causeway, with a dredged depth of 9.5m alongside its head, has been constructed here.

Aspect.—The village of Mkoani is conspicuous from seaward. A red beacon, stands on a rock with a least depth of 1.8m, about 0.3 mile NW of the front range light.

Pilotage.—Pilots are available from, and boarded in, Unguja, Zanzibar. Vessels without local knowledge are advised to use a pilot as the aids to navigation are unreliable.

Anchorage.—Vessels can anchor seaward of the jetty in depths of 12m, sand. There is room for only one vessel. This anchorage obstructs the approach to the jetty and is exposed to N and NW winds.

Vessels can also anchor S of the outer limits of the channel, in the vicinity of the fairway lighted buoy.

Kingoji Bay is entered between a point 2.2 miles NNE of Mkoani, and Ras Kingoji (5° 17'S., 39° 40'E.) 2 miles farther N. Numerous dangers encumber the bay and its approaches and restrict the space available for anchoring.

Mtiye (5° 19'S., 39° 38'E.), a coral reef which dries 0.3m, lies 2 miles SW of Ras Kingoji.

As there are no definite marks available, the best time to enter Kingoji Bay is in the afternoon with the sun astern.

Large vessels may anchor in the entrance to the bay, about 0.7 mile SSW of Ras Kingoji, in depths of 20 or 22m. Smaller vessels may anchor farther SE in depths of 11 to 13m; local knowledge, or prior examination by boat, is essential for taking up berth in this inner anchorage.

Between Ras Kingoji and **Njao Gap** (4° 58'S., 39° 40'E.) the W coast of Pemba is fronted by an almost continuous chain of islands on drying reefs, broken only by a few narrow, deep gaps in the reefs. The W coast of these islands lie on the outer edges of the reefs and as the reefs are steep-to they may be closely approached in safety in clear weather.

The islands, in general, are low, flat, covered with trees and bushes and are without any conspicuous features. The larger islands are partly under cultivation.

Within the chain of islands and reefs the coast is irregular and is indented, with numerous islets, reefs and shoals, but there are several harbors which provide sheltered anchorages. The harbors are connected between the inner islands and reefs, but the anchorages farther N are better approached through the gaps in the outer reefs.

The tidal currents run strongly in all the gaps between the islands except in the vicinity of Mesali Gap (5° 14'S., 39° 36'E.) where the main tidal current flows S of Mesali Island.

6.6 Chake Chake (5° 15'S., 39° 46'E.) (World Port Index No. 47020) is situated at the head of Chake Chake Bay. The port consists of a town and a small natural harbor.

The approach may be made through Owen Channel or through the passage between Mesali Island and Ras Kingoji. There are general depths of 18 to 40m in the approach, however, there are patches of 4.5m and less.

Vessels of all sizes may enter Chake Chake Bay. A stone jetty which can be used by boats at high water, projects from shore at the S side of town. Lighters are available for loading and unloading cargo in the anchorage. The stone causeway has collapsed at its seaward end.

Chake Chake Bay is encumbered by numerous reefs and shoals, however, there are large clear areas which provide good anchorage.

Landmarks in the approach are Ras Tundaua (5° 15'S., 39° 41'E.) 3 miles N of Ras Kingoji which has a large white house and flagstaff on its E side; a large bungalow stands 0.1 mile inland. A monument stands on a low point 2.5 miles E of Ras Rundaua.

Mesali Island is covered with dense jungle; it shows out well from the land in the background when seen from any direction.

Mkumbuu Peninsula, forming the N side of Chake Chake Bay, is of uniform height. On its S side is Dongo Kundu, a conspicuous projection that is wedge shaped and formed of bright red sandstone. A patch of red cliff, 0.5 mile NW of Dongo Kundu, is conspicuous in some lights.

In calm weather or during the Northeast Monsoon temporary anchorage may be taken on the bank about 1.2 miles S of Mesali Island in a depth of from 10 to 14m.

There is anchorage in Ngelema Bay with Ras Kingoji bearing 230° and the W summit of Ngelema, 30m high, bearing 125°, in a depth of 14.6m.

There is anchorage in 29m about 1.2 miles NW of Ras Tundaua and in a depth of 12 to 18m, 1.5 miles N of the same point.

Pilotage is not compulsory for Chake Chake Bay; entry is restricted to daylight only. Pilots can only be embarked at Zanzibar.

6.7 Port Cockburn (5° 12'S., 39° 43'E.), a spacious and sheltered harbor considerably encumbered with reefs and shoals, affords good anchorage in some of its indentations. It may be entered from S by Owen Channel, running between the W extremity of Mkumbuu Peninsula and Uta wa Limani, a reef extending about 5.2 miles N from Mesali Gap; from W by Kokota Gap, lying between the N extremity of Uta wa Limani and Kokota Island, about 0.5 mile NW; and from N by Funzi Channel, lying between Kokota Island and Funzi Island, about 1 mile E.

Range beacons situated on the W side of Kokota Island in range 091° lead through the center of the gap in the outer reef. Another range is situated on the E side of Kokota Island and when in range 341° leads through the S part of Funzi Channel.

Port George (5° 06'S., 39° 40'E.), similar to Port Cockburn, is a sheltered harbor considerably encumbered with reefs and shoals. It affords good anchorage for vessels of moderate draft. The white house of the Provincial Commissioner on a bluff is conspicuous.

Port George may be entered from S by Funzi Channel; from W by Uvinje Gap, running through the outer reef and N of Kokota Island; and from N by a channel running S from Port Kish Kash.

Port Kish Kash is entered from W through the outer reef by Fundo Gap, situated about 8 miles N of Uvinje Gap. The passage running S to Port George is not recommended.

6.8 Wete (5° 04'S., 39° 43'E.) ([World Port Index No. 47025](#)), the small port area of Wete Harbor in the NE corner of Port George, is contained NE of a line joining Ras Ukenjwi (5° 02'S., 39° 40'E.) and Ras Bundani, about 2.7 miles SSE. The town of Wete is situated about 0.5 mile within the N shore of the harbor. A pier projects from the shore abreast the town.

Depths—Limitations.—The maximum size vessel that can be accommodated is 73m in length with a draft of 7.6m. Entrance and departure is restricted to daylight only. Approach channel via Uvinje Gap narrows to about 0.1 mile in width.

Aspect.—A light is shown from a concrete column, black and white bands, on the head of the pier.

A red conical buoy is moored about 1.5 miles W of Ras Tungwe, and marks the SE side of the channel leading to Wete Harbor.

Anchorage beacons are situated about 0.5 mile E of Ras Tungwe. The front beacon, with a white cross topmark, is in range 163° with the rear beacon, surmounted by a white triangular topmark. The range may be obscured by bushes.

Port Kish Kash (5° 02'S., 39° 40'E.), available only to small vessels with local knowledge, is a small harbor greatly obstructed by reefs but affords anchorage in its SE part.

Port Kiuyu (4° 58'S., 39° 41'E.) has ample depths and is a more convenient harbor than Port Kish Kash. Port Kiuyu is entered from W through the outer reef by Njao Gap, situated about 2.7 miles N of Fundo Gap. Anchorage may be taken 0.7 mile SE of the NE extremity of Njao in a depth of 22m.

6.9 Pemba—North coast.—The N coast of Pemba is low and wooded and presents a uniform outline. Ras Kigomasha (4° 53'S., 39° 41'E.) the N extremity of the island, is the only point that can be recognized. The point is rocky and, in addition to the lighthouse, has a clump of trees about 18.3m high on it.

Foul ground, with depths of 7.3m near its outer extremity, extends 9 miles offshore in places and a bank with depths less than 100m extends as much as 13 miles N of the coast; little current is felt on this bank.

Pemba Knolls, consisting of numerous reefs, lies on the foul ground fronting the N coast of Pemba; some of these reefs dry.

Funguni (4° 51'S., 39° 46'E.), about 4.5 miles ENE of Ras Kigomasha, is a large sandbank which dries 2m; it is one of the reefs on Pemba Knolls.

Kundeni, which dries 1m, and Punga-Punge, which dries, lie 1.5 miles NW and 1.5 miles NE, respectively, from Funguni.

Msuka Bay (4° 54'S., 39° 43'E.) is a deep indentation in the coastal reef 2 miles E of Ras Kigomasha. The best time to enter is at LW when the reefs and shoals are visible.

Good anchorage may be obtained in Msuka Bay, even during the Northeast Monsoon, with Ras Kigomasha light bearing 285° distant 2.2 miles, in a depth of 11m. If the anchorage is approached from the SW, course should not be altered to round Ras Kigomasha until Ras Kiuyu bears 112°.

Ras Kiuyu (4° 53'S., 39° 52'E.), the NE extremity of Pemba Island, is a rocky promontory covered bush and faced by cliffs about 6.1m high.

Pangani Bay to Tanga

6.10 Between Pangani Bay (5° 26'S., 39° 01'E.) and Ras Nyamaku the coast of the mainland is sandy, with occasional small coral cliffs; the land inland is well wooded. The coastal reef is fronted by a chain of large reefs which lie up to 4 miles offshore.

Between Ras Nyamaku (5° 07'S., 39° 08'E.) and Ras Kazone, 4 miles NNW, the coast is fringed by mangroves.

Ras Kazone (5° 04'S., 39° 08'E.), the S entrance point to Tanga Bay, is cliffy and covered with vegetation.

Briton Shoal (5° 23'S., 39° 06'E.), lies 3.2 miles offshore and has a least known depth of 7.3m.

South Head Reef, a narrow reef of sand and coral, which partially dries, lies with its S extremity about 1 mile N of Briton Shoal. The reef extends 4 miles NNE and are parallel with the shore.

Fungu Tongone (5° 17'S., 39° 08'E.) is a reef which dries in its N part. A shoal spit, which dries in places, extends 1.7 miles S from Tongone and connects it to South Head Reef. A sandy islet, 6m high, is located on the W edge of the N part of Fungu Tongone.

Karange Islands are a chain of narrow islands lying on an extensive drying reef which on its E side is steep-to; the S extremity of this reef lies 1.5 miles NNE of the sandy islet on Fungu Tongone.

Yambe Island (5° 07'S., 39° 10'E.) 2.5 miles N of the N island of Karange Islands, lies about 0.7 mile offshore; it is encircled by a reef.

Tanga (5° 05'S., 39° 07'E.)

World Port Index No. 47030

6.11 Tanga, situated on the S side of Tanga Bay, is the second principal port of Tanzania. It comprises a deep water jetty for bulk carriers, an outer anchorage in Tanga Bay and an inner anchorage abreast the town. The town of Tanga, the administrative center of the District of Tanga, is situated about 1 mile SW of Ras Kazone.

Depths—Limitations.—Tanga Bay may be entered by Southern Channel, which is formed between Yambe Island and Niule Reef; it has a least depth of 7.9m, and is available for vessels of moderate draft. Ship Channel, between Niule Reef and Fungu Nyama, is the principal entrance to Tanga Bay; it has depths of more 18.3m. A buoy is moored on the S extremity of the shoal water extending S from Funga Nyama.

A deep water jetty, L shaped, projects 0.3 mile ENE from the shore, 0.3 mile SE of Ras Kazone. It will accommodate vessels of 30,000 dwt, with lengths up to 200m and drafts of 10m. It has been reported (1994) that this jetty is in an extreme state of disrepair and should not be used. Within the harbor there are two lighterage wharves with depths alongside from 2.4 to 3m. Ro-ro vessels, with a maximum draft of 4m, may berth at the new lighterage quay in the E end of the harbor.

Aspect.—The coast in the vicinity of Tanga is low, but if the weather is clear, the Bondei Mountains, about 23 miles inland, will be conspicuous. Mlinga, the most conspicuous of them, is a three peaked hill, the middle and highest peak of which is 1,068m above the sea.

Mhinduro, a double peaked mountain 1,033m in height is also conspicuous in certain lights, and some of the distant peaks of this range must be nearly 3,048m high. During the Southwest Monsoon, the mountains are frequently obscured by haze, or perhaps only the easternmost of them will be dimly seen, but during the Northeast Monsoon they are generally clear.

At 17 miles N of Tanga and about 6 miles inland are three rounded hills, nearly always visible from seaward; Kilulu, the northernmost, is 267m high. Farther to the N are two isolated conical mountains 15 miles NW of Wasin. Jombo, the more distant, is 470m high; Mrima is truncated and 321m high. Both are visible from Pemba Island.

The land elsewhere is low and flat, with the exception of the Amboni Hills, about 4 miles NW of Tanga, which serves well to mark its position. These hills, 151m high and densely wooded, are rounded and present no defined summit, but there is a well marked saddle between the two southernmost and highest points, which serves as one of the range marks for entering.

The several low and densely wooded islands off this part of the coast are sometimes difficult to distinguish from the

mainland, but with any haze over the land, they stand out well and distinct.

Ras Kazone is cliffy and covered with vegetation. About 0.5 mile to the S of the point a patch of red cliff shows very distinctly with the sun in the E.

A conspicuous house stands on Ras Kazone. A conspicuous hospital is situated about 0.8 mile SW of Ras Kazone. A Post Office Tower, marked by an obstruction light, is situated 0.5 mile SW of the hospital.

A fertilizer plant, with a conspicuous chimney, is situated close SW of the foot of the jetty.

Pilotage.—Pilotage is compulsory. Deep draft vessels are met at the entrance to Ship Channel, other vessels are met 1 mile SE of Ulenge Beacon. A pilot ladder is required on the port side during the Northeast Monsoon, and on the starboard side during the Southwest Monsoon.

Ships should report their ETA through Mombasa Coast Radio Station. Entry into the inner harbor is permitted during daylight hours except at the discretion of the pilot.

Signals.—A signal station is situated immediately below Ras Kazone Rear Range Light Structure. Signals are exhibited to indicate if the inner channel to the harbor is clear. Ras Kazone Signal Station keep 24 hour VHF watch on channel 16, working on channel 12.

The following is a schedule of traffic signals displayed at the signal station on Ras Kazone:

A black flag by day or 3 red lights displayed vertically by night, indicates entry prohibited.

A black ball by day or 3 lights, white, red, white, displayed vertically by night, indicates departure prohibited.

Anchorage.—Vessels of all classes may anchor in Tanga Bay in depths from 11 to 18m. The inner harbor provides safe anchorage for vessels up to 180m in length and a draft of 8.2m.

Directions.—The port should if possible be made in the morning as in the afternoon the sun causes inconvenience and the range marks are not conspicuous. Bring Ulenge Lighthouse to bear 319° and then follow this range until the Ras Kazone light structures are in range 266°. Follow the latter range until clear of Ulenge Reef, when anchorage may be taken as convenient. If going into the harbor, from S of Ulenge Reef, steer about 285°, with Kwawa Reef Light ahead until clear of the shoals E of Ras Kazone, then steer W to pass about 0.2 mile S of Kwawa Reef Light and on to the ranges for the inner harbor.

Caution.—A prohibited area extends about 0.3 mile ENE from the head of the inner harbor. No craft may enter the area except with the written permission of the Harbor Authority.

Tanga to Mombasa

6.12 Between Ras Kwawa (5° 00'S., 39° 10'E.), the N entrance point of Tanga Bay, and Ras Rashid the coast is fronted by reefs and islands which lie up to 11 miles offshore. The coast is indented by several inlets and a number of streams flow into the sea in this area.

Mwamba Wamba (4° 58'S., 39° 15'E.), which partially dries, lies 6 miles NE of Ras Kwawa; its E side is steep-to.

Mwamba Shundo, a reef 0.5 mile NNE of Mwamba Wamba, is moderately steep-to; its N part dries 0.3m. An area of foul

ground about 1 mile in extent, lies 0.5 mile N of Mwamba Shundo.

Kwale Bay (5° 00'S., 39° 09'E.), formed close N of Ras Kwawa, provides well sheltered anchorage in depths from 9 to 22m. Kwale Island, consisting mostly of mangrove swamps, forms the NE side of Kwale Bay. A rocky islet and some 2m high rocks, lie on a reef extending 0.35 mile S of Kwale Island.

Manza Bay, entered between the NE extremity of Kwale Island and the S extremity of Boma Peninsula, 1 mile N, has depths from 9 to 20m. The depths in the entrance of the bay are from 10.4 to 12.8m, over a width of 0.2 mile.

Kwale Bay and Manza Bay may be approached from Tanga Bay, by passing inland of Fungu Nyama and Mwamba Wamba. A N approach to these bays may be made by passing N of Mwamba Kitugamue, and then W of this reef.

Ras Kilifi (4° 47'S., 39° 13'E.) is situated 13 miles NNE of Ras Kwawa. Some prominent mountains are located W of Ras Kilifi and are the first to be seen from seaward in clear weather.

Mount Jombo (4° 26'S., 39° 12'E.) and **Mount Mrima** (4° 28'S., 39° 16'E.) are isolated conical mountains rising to 468m and 303m high, respectively. Mount Jombo is very sharp when bearing N of 286°; S of this bearing it becomes flat and not clearly defined. Mount Mrima is more truncated.

From Ras Kilifi to Ras Rashid, the coast is low and well-wooded, consisting of low rocky cliffs, alternating with sandy beaches bordered by mangroves and fringing reefs.

The coast in this area recedes to form a bay, which is encumbered with numerous islands, reefs, and shoal patches.

6.13 Wasin Island (4° 40'S., 39° 22'E.) is the largest of the islands in the above mentioned bay. Pungutiayu, marked by a light, is located 2 miles S from the SE extremity of Wasin; it stands out prominently against the land when seen from S. Tide rips and overfalls form off the reefs E of Pungutiayu, causing large and confused seas during strong winds.

Ship Shoal (4° 39'S., 39° 27'E.), with a least known depth of 5.5m, consists of several shoals lying about 2.7 miles ENE of the SE extremity of Wasin Island. A depth of 2.7m is charted 1.5 miles SW of Ship Shoal.

Wasin Channel is formed between Wasin Island and the mainland between Ras Wasin (4° 39'S., 39° 24'E.) and Kisimani 3 miles W.

Shimoni is located midway between Ras Wasin and Kisimani; a flagstaff fronts the town. Pilotage is compulsory at the Port of Shimoni for vessels of 61m in length and over. Pilots should be ordered in advance and are normally picked up at Mombasa.

The anchorage recommended is in a depth of 13m, about 0.4 mile offshore, with the town of Wasin, on Wasin Island, bearing about 200°. To the E of this position, the swell is felt during the Southwest Monsoon.

Ras Rashid (4° 37'S., 39° 24'E.), the S entrance point to Funzi Bay, is located about 1.5 miles NNE of Ras Wasin; the point is fronted by a reef.

6.14 Funzi Bay (4° 36'S., 39° 25'E.) is entered between Ras Rashid and Ras Kanda, about 3 miles NNE. Ras Kanda is marked by a conspicuous clump of trees 38m high. The shores of the bay are bordered with mangroves and a mangrove swamp fills its head. The bay is in large part occupied by a

bank with less than 5.5m. M'dua, a detached reef which dries 0.6m, lies in the SW part of the bay, about 0.6 mile NNE of Ras Rashid. M'Kame, a reef which dries from 0.6 to 0.9m, lies about 1.7 miles SW of Ras Kanda. Sheltered anchorage may be obtained, in about 8.2m, sand, between M'dua and M'kame Reefs. Anchorage can also be obtained farther out, in 10 to 12m, about 1 mile ENE of Ras Rashid.

At the time of flood, the current enters Funzi Bay with force.

Between Ras Kanda (4° 35'S., 39° 26'E.) and Chale Point, 10 miles NNE, the coast is rocky and fringed with reefs.

A white beacon stands on the coast 6.7 miles NNE of Ras Kanda; a hospital comprised of a group of white buildings with red roofs lies W of the beacon.

Wimbi Reefs (4° 32'S., 39° 30'E.) extend NNE for a distance of 2.7 miles from a position 3.2 miles NNE of Ras Kanda. The reefs comprise four detached patches with depths of less than 2m. These reefs lie parallel to the coast.

Chale Island (4° 27'S., 39° 32'E.), attached to Chale Point, close N, by a reef, is remarkable because of its high trees. A light marks the S end of the island.

Chale Reef, which dries 1.2m, extends 1.7 miles SSE of Chale Island.

6.15 From Chale Point, the coast extends NNE 23 miles to Ras Mwa Kisengo, the S entrance point to the port of Mombasa. The intervening coast is, in general, low and wooded with overhanging cliffs, coral points and sandy beaches.

A detached drying reef fronts the coast and lies from 0.5 to 0.9 mile offshore; it extends NNE for a distance of 11.7 miles from a position E of Chale Point. A boat passage lies within this narrow reef.

A radio tower, 23m high and marked by obstruction lights, stands near the coast 8.2 miles NNE of Chale Point. Seven conspicuous evenly-separated beach hotels stand along the coastline on each side of the radio tower, between 7.5 and 10 miles distant from Chale Point.

Black Cliff Point (4° 11'S., 39° 38'E.), a slight projection, has a prominent cliff face 8m high. The point lies at the foot of a hill, which is 32m high to the top of the bushes; a beacon stands on the summit of the hill.

Shimba Hills lie about 10 miles inland between Chale Point and Ras Mwa Kisengo; they rise to a height of 449m.

Mombasa Gap (4° 04'S., 39° 41'E.) separates Shimba Hills from a flat range to the N. The gap does not open until it bears less than 265° when it becomes a conspicuous landmark.

Tanglia (4° 09'S., 39° 35'E.), 129m high, is the highest summit of a range of hills lying about midway between Shimba Hills and the coast. A beacon stands at an elevation of 106m on the NE side of Tanglia and is visible when bearing less than 280°.

A detached rounded summit 104m high lies nearly 1.2 miles N of Tanglia; this summit is a good mark when visibility makes distant objects difficult to identify.

Mombasa (4° 04'S., 39° 41'E.)

World Port Index No. 47100

6.16 Mombasa, the principal port of Kenya, is also the main sea outlet for Uganda. The port is entered between a

break in the reef between Ras Mwa Kisengo and Ras Mkuungombe, 2.5 miles NE. The port comprises Kilindini Harbor, Port Reitz and Mombasa Harbor, Port Tudor, and all the tidal waters around Mombasa Island. The port limit on the seaward side is bounded by a circle with a radius of 3 miles from the Ras Serani rear range light.

Winds—Weather.—The Northeast Monsoon prevails during the months of December to March and the Southwest Monsoon during the months of May to September. During the intervening months the wind gradually changes through E. Weather conditions rarely interfere with port operations, however, during the monsoon seasons, with strong winds, boat traffic and lighter operations may be inconvenienced. It has been reported (1994) that strong NE winds may make it difficult for vessels to leave the mooring buoys.

Tides—Currents.—In Kilindini Harbor, the MHWN are 2.4m and in Mombasa Harbor MHWN are 2.3m.

The tidal currents set obliquely across the entrance channel, but within the entrance, they follow the direction of the channel. In the inner part of the harbor, between Ras Kilindini and Ras Kikaangoni, it is reported that various eddies exist at certain stages of the tide.

In the E arm, both incoming and outgoing tidal currents attain a velocity of from 2.5 to 3 knots at springs, and have about an equal duration.

The incoming current in Port Kilindini has a velocity of 3 to 4 knots at springs and 2.5 knots at neaps; the outgoing current varies from 3 knots at springs to 1.5 knots at neaps.

In Port Reitz both currents run about 1.5 knots at springs and 1 knot at neaps.

During the Southwest Monsoon, a N current of up to 5 knots may be experienced at the harbor entrance.

Depths—Limitations.—The approach channel through to and including the turning basin in Kilindini Harbor was dredged to a depth of 15m in 1994. Kipevu Oil Terminal, a T-head pier, was dredged to a depth of 13.4m in 1972. Berths 16, 17 and 18, close NE of the Oil Terminal, have a dredged depth of 11m alongside. In 1984 all anchor berths were re-designated following the removal of Kilindini Reef and extensive harbor dredging.

In 1986, less water than shown was reported to exist in the approach channel; also 0.3 mile SSE of the light off Ras Kikaangoni and off Kipevu Oil Terminal. A depth of 10.5m lies close S of the range line, 1.3 miles distant ESE from Ras Serani front range light.

An underkeel clearance of 2.4m is required during the Southwest Monsoon and of 1.8m during the Northeast Monsoon.

Tankers with drafts of 12.8m may enter harbor at HW; vessels drawing up to 13.4m can be accommodated during ideal conditions.

Vessels with lengths up to 250m and vessels carrying dangerous cargo may enter during daylight only. Entry at night is normally limited to vessels up to 198m in length, although in certain circumstances vessels up to 250m may be permitted to enter.

There are berths for ro-ro and container vessels at berths 16, 17 and 18. It has been reported (1994) that the maximum draft allowed at the piers is 10.1m.

Aspect.—The Shimba Hills which rise to over 305m in height, are about 10 miles inland of the coast S of Mombasa. On the S shoulder of the range is a conspicuous tree, not visible, however, when bearing less than 265°. Mombasa Gap separates the Shimba Hills from the flat range that rises to the N. In the middle of the gap, or dip, is a cluster of trees. The gap does not appear open until bearing S of 265°, when it becomes a conspicuous mark for making Mombasa.

Between the Shimba Hills and the coast is a range of hills about 122m high. Tangila (4° 09'S., 39° 35'E.), the highest summit of the latter range, is 129m high and rises nearly 3.5 miles NW of Black Cliff Point; to the NE of this peak there is a triangular target beacon which stands at an elevation of 105m and is visible when bearing less than 280°. Approximately 1.2 miles NNW of Tangila there is a detached rounded summit, 104m high, which is a good landmark when visibility makes objects difficult to identify.

Coroia Mombasa (3° 59'S., 39° 41'E.), or the hummocks of Mombasa, form one of the best landmarks for making Mombasa from the offing. They are three low hillocks about 5 miles N of the port; the middle hillock, about 122m high and with a clump of trees on its summit, is the highest. From the NE they appear close together.

An orange colored gas flare, which has been reported visible up to 30 miles from seaward, is situated about 6 miles NW of the harbor entrance.

Conspicuous objects in the approach to Mombasa are the white factory situated about 1 mile NW of Ras Iwatine, which shows prominently from the N and E and is usually brilliantly-lighted at night; a hotel standing near the coast 1 mile SW of the point; the hotel on high ground 0.8 mile WSW from Ras Serani; Bima tower, situated 1 mile NW of the same point; and a school 0.8 mile NNE of Bima tower.

Pilotage.—Pilotage is compulsory for all vessels of over 61m in length, and is available 24 hours a day. Vessels may not enter the harbor until a pilot has been embarked. In the event of bad weather or other circumstances making boarding by a pilot impracticable, vessels concerned must comply with instructions received through Ras Serani signal station. Pilots may be contacted on VHF channels 16 and 12. The pilot boat has an orange hull with a white house; the word "PILOTS" is written across the house.

Regulations.—"The East African Harbours Regulations 1970" are in force within the port of Mombasa. Copies of the regulations may be obtained from the port authorities.

Anchorage.—Anchorage is available within the harbor as assigned. Temporary anchorage may be taken in 35m, with Ras Serani rear light bearing 322°, distant 2.5 miles.

Anchoring in the outer approaches is not recommended, particularly in the Southwest Monsoon. Anchoring and fishing are prohibited in a large area of Mombasa; the limits may best be seen on the area chart.

Caution.—The range lights on Ras Serani have been reported (1993) to be difficult to distinguish.

Mariners are cautioned that a strong N current may be experienced off the entrance to Mombasa, and that at the height of the Southwest Monsoon, a N set of up to 5 knots may be experienced.

Mombasa to Kilifi Creek

6.17 From Mombasa, the coast trends in a NNE direction to Ras Kitoka (3° 38'S., 39° 52'E.), the S entrance point to Kilifi Creek, a distance of about 26 miles.

Rabai Range, about 10 miles inland, runs nearly parallel with the coast for 10 miles NNE of Mombasa. Jidana (3° 50'S., 39° 40'E.), 313m high, is the farthest N and highest of five distinct summits within Rabai Range. Kinagoni, a peak about 1.5 miles SW of Jidana, has a clearly defined dome-shaped summit and is remarkable.

Senawe Range, separated from Rabai Range by a low hill, continues N. Simba (3° 44'S., 39° 41'E.), 352m, is the farthest S of the Senawe Range. Kauma, 329m high, lies 3 miles N of Simba.

A coastal range commences 13 miles NNE of Mombasa and extends about 11 miles NNE to the vicinity of Blowing Point (3° 42'S., 39° 52'E.). The highest hill of the coastal range rises to a height of 198m, 9.5 miles SW of Blowing Point. Mkomani, 139m high, is located 5 miles SSW of Blowing Point; each of these hills have a clump of trees on their summit.

From a position on the coast 4 miles NNE of Mombasa to Mtwapa Creek (3° 58'S., 39° 46'E.), 4 miles farther NNE, the coast consists of sandy beaches with overhanging cliffs. From the break in the coastline formed by Mtwapa Creek, the sandy beaches and overhanging cliffs continue to Blowing Point. A prominent patch of white sand is located on the cliffs 2 miles S of Blowing Point.

A barrier reef fronts the coast to a position about 5 miles S of Blowing Point. The outer edge of the reef is steep-to and there are no known off-lying dangers between Mtwapa Creek and Blowing Point.

Cannon Point (3° 58'S., 39° 46'E.), the S entrance point to Mtwapa Creek, is marked by a light; there is a break in the barrier reef E of the point.

Kilifi Creek (3° 38'S., 39° 52'E.)

World Port Index No. 47105

6.18 Kilifi Creek is a small natural harbor which provides shelter for small vessels in the inner harbor and berths for larger vessels in the outer anchorage.

The port comprises the area within 3 miles seaward of Ras Kitoka and includes Takaungu Creek and Kilifi Creek.

Kenya Ports Authority Mombasa directs the port.

Tides—Currents.—The tidal current set directly across the channels through the off-lying reefs; the flood current is to the N and the ebb current sets S. In the creek the currents have a velocity of 0.75 to 1.5 knots.

Depths—Limitations.—Takaungu Pass, formed between South Reef and Middle Reef, has depths of over 18m over a width of 0.1 mile.

North Pass, formed between Middle Reef and North Reef, is the most direct approach to Kilifi Creek, but depths of 9m or more exist over a width of only about 0.7 mile; a depth of 4.3m lies close N of the entrance range line.

Kilifi Creek, entered between Ras Kitoka and a similar bluff 0.3 mile NNE, has a narrow entrance, with a least depth of 3m. The depths within the harbor are over 22m but the channel is winding and not suitable for large vessels to enter.

An overhead power cable with a vertical clearance of 15.2m spans the creek 0.7 mile W of Kilifi Creek range lights. A bridge has been constructed across the creek. The span has a vertical clearance in the center of 20m.

Pilotage.—Pilotage is compulsory for vessels 61m long and over. Pilots should be ordered in advance and picked up in Mombasa.

Anchorage.—Anchorage may be obtained off the entrance to Kilifi Creek in a depth from 15 to 18m, sand, about 0.5 mile E of North Pass front range light. There is anchorage in a depth of 12m close within Takaungu Pass.

Vessels that can pass under the power cable may anchor in midchannel about 0.1 mile W of the cable in a depth of from 28 to 37m.

Kilifi Creek to Malindi

6.19 Between Kilifi Creek and **Mida Creek** (3° 23'S., 39° 59'E.), the coast is similar to that S of Kilifi, consisting of sandy beaches and low overhanging coral cliffs backed with thick scrub and bushes. A flat range of hills from 180 to 240m high lies about 6 miles inland.

Red sand cliffs are located on the coast about 9 miles NNE of Kilifi; a short distance farther NNE there is a white patch of sand 9m high.

Caution.—A 2.5 mile long band of tide rips was reported (1994) in the vicinity of position 3° 33.0'S., 40° 22.1'E.

Mount Mangea (3° 15'S., 39° 43'E.) has a fairly well-defined summit with gradually sloping sides. It stands alone 17 miles WNW of the entrance to Mida Creek and makes a good landmark in clear weather.

Between Mida Creek and Malindi Point, 11 miles NE, the coast is thickly wooded. On the N bank of Mida Creek there are patches of red sand cliffs.

Malindi Point (3° 15'S., 40° 07'E.) is a rounded coral cliff 6m high. The point is rendered noticeable by Sail Rock, which is undercut and resembles a dhow sail, lying close E.

Malindi Reef, which dries in patches and generally breaks, extends about 1.5 miles offshore and fronts the coastal reef for about 3 miles SW of Malindi Point.

Malindi Bank extends about 7 miles SSE of Malindi Point. Overfalls occur over the outer part of the bank where there are depths from 15 to 30m.

Leopard Point (3° 15'S., 40° 08'E.), about 2.2 miles NNE of Malindi Point, is 19.5m high, it is white and sandy.

Leopard Reef, lying 1.2 miles E of Leopard Point, dries from 0.3 to 1.2m and is surrounded by foul ground.

A wreck lies on the E side of the reef and a sand cay which is prominent at LW dries 3.7m and lies on the NW part.

Gaji Hill, a wooded, quoin shaped hill shows conspicuously from the E. Single-Tree Hill is a round topped hill, 169m high, with a single tree on its summit, rising about 9 miles NE of Gaji Hill.

Vasco da Gama's Pillar, near the extremity of the cliffy point about 1.7 miles N of Leopard Point, is of white masonry, 5.5m high, and has a cross on it.

Griffon Patches, formed of coral and with a least known depth of 4.7m, extend 2.7 miles N from the foul ground lying off the E side of Leopard Reef. Single-Tree Hill, in range with



Vasco de Gama's Pillar

the guardhouse on the N bank of the Galana River, bearing 323°, leads NE of all the patches.

Malindi (3° 13'S., 40° 08'E.)

World Port Index No. 47107

6.20 Malindi is situated at the head of Malindi Bay and is the headquarters for the District of Malindi. The port consists of the town and a small natural harbor.

Tides—Curr ents.—Off Malindi, within the 180m curve, a nearly constant current of 0.75 knot to the S has been experienced in the months of November and December. Outside the 180m curve the current is constantly N at a rate of 1 knot during the Northeast Monsoon and at a rate of 3 knots during the Southwest Monsoon.

Aspect.—Goji (3° 12'S., 40° 00'E.), a wooded hill 116m high, is a good mark for a vessel approaching the anchorage. There is a conspicuous minaret about 0.6 mile NW of Vasca da Gama's Pillar. There is a tall building and a water tower 1 mile N of the minaret which make good marks.

Pilotage.—Pilotage is compulsory for vessels 61m in length and over. Pilots should be ordered in advance and are normally picked up in Mombasa.

Regulations.—"The East African Harbours Regulations 1970" are in force within Malinda.

Anchorage.—Anchorage may be taken about 0.7 mile from the front range light, on the range, in a depth of 11m, mud; this anchorage is protected from the Southwest Monsoon. Vessels should not anchor farther in. Large vessels are recommended to anchor outside the depths of 18.3m in a position 1 mile ENE of the light on Pillar Reef.

Directions.—To enter by the North Pass, steer in with the light beacons on the cliff 1 mile S of Ras Kitoka in range bearing 274° until within 0.5 mile of the shore, when course may be altered for the anchorage or for the river entrance.

The beacons on the N side of the river entrance, in range 330°, lead into the river, but vessels of considerable draft should steer first to the W of the range and then to the E of it in order to keep the axis of the channel. When Ras Nkoma is in

range with point E of it on the N bank, bearing 288°, round into the river, keeping in mid channel. The reef off the N shore just within the entrance should be given a safe berth.

Vessels with a draft greater than 2.7m must not proceed above the ferry crossing without permission from the Port Authority.

Caution.—Malindi Marine National Park whose limits include Barracouta Passage, North Reef and Stork Passage, is marked on its NE and SE extremities by can buoys. The buoys are moored 1.5 miles NE and ESE of Casuarina Point (3° 15'S., 40° 08'E.). Fishing is prohibited in this area and no shells or coral may be taken from the park.

Malindi to Lamu

6.21 Malindi Bay indents the coast between the town of Malinda and the mouth of the Galana River 3 miles N. The shore of the bay is bordered by a sandy beach with occasional coral outcrops which cover and uncover depending on the monsoon prevailing.

A prominent white sandhill 50m high rises 0.7 mile N of the mouth of the Galana River near the S end of a coastal range which stretches to Mambui Point.

Mambui Point (3° 06'S., 40° 10'E.) lies 2.7 miles NE of Galana River. Mambui is situated on the N side of the point and is dominated by a prominent mosque.

Magarini rises to a height of 169m; a single tree stands on its summit. Between this hill and the coast the country is flat.

Ras Ngomeni (2° 59'S., 40° 14'E.) is the extremity of a peninsula projecting 3 miles ENE from the coast. The point is bold and steep-to with overhanging coral cliffs 5m high. An isolated hill 28m high lies close within the point and a ridge extends W from this hill to a more prominent hill 51m high, 2 miles W.

Ungama Bay (2° 45'S., 40° 20'E.), also known as Formosa Bay, is entered between Ras Ngomeni and Ras Mwana.

Between Ras Ngomeni and Mto Kilifi, the shore of the bay consists of a sandy beach with numerous creeks and swamps within. A prominent sandhill, 18m high, rises 1 mile NNE of the mouth of Mto Kilifi.

Between Mto Kilifi and Kipini, the coast consists of sandhills which are mostly wooded.

Caution.—Within the head of Ungwana Bay extensive shoaling has been reported (1988). A submerged wellhead exists 11.5 miles NE of Ras Ngomeni.

Kipini (2° 31'S., 40° 32'E.) is a large village at the NE end of Ungama Bay. Anchorage can be taken about 3 miles S of Kipini in a depth of 7m, sand. Deeper draft vessels may anchor farther out, W of Mwamba Ziwayu, in a depth of 8.5m.

Ras Mwana (2° 34'S., 40° 36'E.) is a low rocky point fringed by a drying coral bank extending 0.5 mile S.

Mwamba Ziwayu is a group of jagged, rocky islets lying 3 miles S of Ras Mwana. A shoal spit, marked near its S extremity by a lighted buoy, extends 4 miles SSW from Mwamba Ziwayu.

Mwamba wa Tawa Ndani (2° 34'S., 40° 40'E.) is a group of shoal patches extending 4 or more miles E of Ras Mwana; the shallowest of these patches dries 1m.

6.22 Between Ras Mwana and **Ras Biongwe** (2° 23'S., 40° 49'E.), 17 miles NE, the coast consists of sandhills from 15 to 60m high. A prominent group of sandhills with a white patch on their seaward slope are located 4.5 miles NE of Ras Mwana. Another prominent sandhill 55m high, rises 5 miles farther NE; a sharp boulder stands on the N side of this sandhill.

Ras Tenewi (2° 27'S., 40° 46'E.), a low sandy projection, is located 11.7 miles NE of Ras Mwana. Hills, which are good marks, rise to a height of 70m, 4.2 miles NE of Ras Tenewi.

Ras Biongwe, 5 miles NE of Ras Tenewi, forms the SE extremity of a rounded peninsula.

Tenewi ya Juu (2° 28'S., 40° 48'E.) are a line of rocky islets, with heights up to 12m, located on a reef 1.5 miles S of Ras Tenewi. The reef is steep-to on its E side but it is connected to Ras Tenewi by reefs and shoals.

Kinyika (2° 26'S., 40° 50'E.), a rocky islet 9m high, lies on a reef 4.5 miles ENE of Ras Tenewi. Foul ground extends SW from the islet and no attempt should be made to pass close off this side of the islet.

During the Northeast Monsoon good anchorage may be obtained W of the reef surrounding Tenewi ya Juu in depths from 13 to 15m. The anchorage should be approached with the prominent sandhill 55m high, located 2.7 miles WSW of Ras Tenewi, bearing 308°. As soon as Kinyika is open NW of Tenewi ya Juu course may be altered to anchor as convenient. The above track leads about 0.5 mile SW of a reef.

Lamu Island (2° 17'S., 40° 52'E.) lies at the head of Lamu Bay; its S extremity is located 3.7 miles N of Ras Biongwe. The S coast of the island consists of a sandy beach backed by prominent white sandhills from 9 to 81m high, partly covered with scrub.

These sandhills, and particularly the ones near the entrance to Luma Harbor, are whiter than those in the vicinity of Ras Biongwe. The SE extremity of the island is marked by a light; it is the rear light of a range in line bearing 015°.

Lamu (2° 15'S., 40° 54'E.)

World Port Index No. 47110

6.23 Lamu is situated on the E side of Lamu Island, the port consists of a town and a small natural harbor.

Winds—Weather.—The Northeast Monsoon and Southwest Monsoon blow regularly along this coast, but close inshore the wind draws in during the daytime, and a land wind prevails at night. In January the wind varies from NE to SE and is generally fresh, though at times light. It is usually somewhat hazy.

Tides—Currents.—The N current off Lamu is stated to be uncertain in strength, but this applies chiefly to the Northeast Monsoon when the N and S currents meet somewhere between Lamu and Castle Point.

The general N set between Mombasa and Lamu is from 2 to 4 knots during the Southwest Monsoon and from 1 to 2 knots during the Northeast Monsoon. There is a strong indraft with the incoming current into Manda Bay and Pate Bay. The tidal current runs about 2.5 knots at Shela and much stronger at Lamu, especially with a N wind.

Depths—Limitations.—The channel across the bar is about 0.5 mile wide. In 1963, there was a depth of 5.2m over the bar on the range line, but mariners are cautioned that depths are subject to change during the rainy season. In 1985, less water was reported over the bar near the range line.

The draft of 5.2m can be carried in the fairway to the anchorage off the town of Lamu.

Aspect.—Dongo Kundu, the W shore of Lamu Bay, is a rounded peninsula rising to a height of 70m; there are conspicuous white sandhills on the peninsula.

Ras Kitau, the SW extremity of Manda Island, is low, rocky, and is backed by bush. Manda Island forms the E shore of Lamu Bay.

Pilotage.—Pilotage for vessels 200m or over in length is compulsory at Lamu. Pilots should be ordered in advance and are normally picked up at Mombasa.

Anchorage.—The harbor has three sheltered anchorages deep enough for vessels up to 91.5m long and a draft of 5.2m.

Lamu to Kiwaihu Bay

6.24 From Lamu to **Kiwaihu Island** (2° 00'S., 41° 17'E.), the coastline is indented to a distant of about 12 miles and forms several bays, which are encumbered by several islands and numerous reefs. From the S the largest bays are Manda, Pate and Kiwaihu.

From Kiwaihu Island to Raas Kaambooni, 27 miles farther NE, the coast consists of a series of ranges of hills from 45 to 100m high. For the most part these hills are sandy, with sparse scrub and low bushes, and have few recognizable features.

Manda Island (2° 16'S., 40° 57'E.) separates Lamu Harbor from Manda Bay. A few low hills are seen along its seaward face; the low parts are comprised of sand, but are of a much more yellow hue than the hills of Lamu.

Prestgrave Bank (2° 19'S., 41° 01'E.) lies in the S approach to Manda Roads there is a least charted depth of 5.2m on the bank. Mchangamneni, an extensive coral shoal, with a least known depth of 1.8m, lies between Prestgrave and the coastal reef. The sea does not always break on these shoals and they may be difficult to see.

Vidal Bank (2° 18'S., 41° 04'E.) lies with its SW extremity 1.5 miles E of Prestgrave Bank and extends 3.7 miles NE. The bank has a least charted depth of 3.6m. The sea seldom breaks on this bank and it is inadvisable to cross this bank due to the irregular depths.

Mlango Muhaji (2° 18'S., 41° 01'E.), the S entrance channel to Manda Roads, is formed between Prestgrave Bank and Vidal Bank; it has a least depth of 10.4m in its central part.

Clark Patch (2° 16'S., 41° 01'E.), with a depth of 8.2m, lies in the N part of Manda Roads.

Mwamba Hanawi is a detached coral reef, awash in places, that breaks at all states of the tide.

Barracouta Channel is formed between Vidal Bank and Mwamba Hanawi.

Manda Roads (2° 16'S., 41° 01'E.) is an anchorage lying close E of Manda Island. It may be approached from the E through Barracouta Channel by crossing the 40m curve, with the highest hill on Ras Ukowe bearing 269°. When the beacons E of Manda Toto Island (2° 14'S., 40° 59'E.) are in line 354°

course may be altered to anchorage about 2 miles SE of Ras Ukowe.

Mlango Muhaji is the S approach to Manda Roads. The 40m curve line may be crossed, with the islet Jiwe la Mpupu (2° 13'S., 41° 01'E.), 6m high, in range with the SE extremity of Shongoni Peninsula bearing 357°. When the beacons are in range 354° follow that track into Manda Roads and proceed to anchorage as desired.

Good anchorage may be taken in Manda Roads in depths from 16.5 to 22m, mud and sand. Presgrave and Vidal Banks afford some shelter from the prevailing monsoons, but there is usually some swell in the roads.

Manda Bay (2° 07'S., 40° 57'E.) is entered from Manda Roads, through a channel between the reef extending from Manda Toto Island and the range beacons about 1 mile ENE; there is a least depth of 11.3m in the fairway.

The tidal currents are strong in the entrance to the bay and attain a velocity over 4 knots at springs and at neaps the velocity is considerable. Off Ras Mtangawanda, the W extremity of Pate Island, the maximum velocity is about 1.5 knots. Completely sheltered anchorage may be obtained in the S part of Manda Bay in depths from 10 to 14m.

Pilotage.—Pilotage is compulsory for all vessels 200m and over in length at Manda Bay. Pilots should be ordered in advance and are normally picked up at Mombasa.

Caution.—In Manda Bay, there is often a considerable amount of weed and mangrove debris floating on the surface and just below the surface which may be drawn into suction inlets.

6.25 Pate Bay (2° 10'S., 41° 05'E.) is formed between Ras Shongoni, the S extremity of Pate Island, and Ras Mitu Mitu 7 miles NE.

Ras Mitu Mitu (2° 09'S., 41° 06'E.) is a point formed of distinctive sand dunes, about 9m high, which make the only break in the wide belt of mangroves lining the S coast of Pate Island.

Kisingati Island lies on the edge of the fringing reef, in the center of Pate Bay, 4 miles NE of Ras Shongoni, the S coast of this island is free of mangroves and to a degree resembles Ras Mitu Mitu.

Pazarli Ridge (2° 12'S., 41° 07'E.), a chain of coral rocks which dry from 2 to 3m, lies across the central part of the entrance to Pate Bay. There is a pass at each end of the ridge leading into the bay.

The E side of the bay is flanked by an extensive group of drying sand and coral reefs; among these reefs are Mercer Rocks, and Mwamba Hasani (2° 08'S., 41° 10'E.). Siwi Spit extends NE from Mwamba Hasani.

Caution.—A number of detached coral patches with charted depths from 6.1 to 12.2m lie within 3.5 miles S and 2 miles E of Pazarli Ridge, in the approach to Pate Bay. These patches have not been fully examined and less water than charted may be expected over them. The entrances to the bay have also not been fully examined and great care should be exercised when navigating in this vicinity.

6.26 Mlango Pazarli (2° 12'S., 41° 05'E.), the SW entrance to Pate Bay, is formed between the shoals extending S from Pazarli Ridge and a depth of 1.8m about 1 mile W. The pass is

about 0.4 mile wide and has a charted depth of 6.7m, but on the bar less depths may be found.

A vessel approaching the pass from the S should cross the 40m line with the E extremity of Kisingati Island bearing 333°. As soon as the S extremity of Manda Toto Island bears 243° course may be altered to anchor as convenient in Pate Bay.

Mlango wa Sera (2° 10'S., 41° 07'E.), the NE pass into Pate Bay, lies between the NE rock on Pazarli Ridge, which dries 2.4m, and the edge of the foul ground extending SW from Mercer Rock.

Mlango wa Sera is about 0.5 mile wide and has a least charted depth of 5.2m, but less water may be found in the fairway.

Vessels should cross the 40m curve line with the W extremity of the sand dunes forming Ras Mitu Mitu bearing 314°; this course leads through Mlango wa Sera close to the NE rock of Pazarli Ridge. This entry should only be made when the NE rock of Pazarli Ridge is visible. When the vessel is within Pate Bay alter course W when the S extremity bears 270°, which leads to the anchorage in the NE part of the bay.

6.27 Kiwaihu Bay (2° 04'S., 41° 12'E.) is entered between the E extremity of Pate Island and Boteler Ledge, 4.5 miles NE. Within the entrance points the whole bay is shoal, with numerous isolated patches of coral with depths from 0.3 to 1.8m. In calm weather these patches can sometimes be seen in the earlier part of the day because of the discolored water around them. Later in the day, when a sea breeze develops, they are impossible to identify and navigation in the bay is hazardous at LW, even for boats.

Owen Patches (2° 05'S., 41° 15'E.), 3 miles NE of Siwi Spit, has a least charted depth of 3.9m; it is difficult to see. An entrance channel to Kiwaihu Bay lies between this patch and Siwi Spit.

Boteler Bank, with a depth of 4.9m, lies in the N part of the entrance to Kiwaihu Bay, in a position about 1 mile N of Owen Patches. This bank is irregular and is not easily seen.

Kiwaihu Island (2° 00'S., 41° 17'E.) lies 6 miles NE of the E extremity of Pate Island. A conspicuous conical hill, 47m high, stands in the central part of the island; a smaller, but more symmetrical hill, lies close NE.

Kiwaihu Bay to Raas Kambooni

6.28 Little Head (1° 57'S., 41° 19'E.) is situated on the mainland, 0.7 mile NE of the N extremity of Kiwaihu Island. From Little Head to Raas Kaambooni, 25 miles NE, the coast consists of a series of ranges of hills from 45 to 100m high. For the most part these hills are sandy, with sparse scrub and low bushes; few have recognizable features.

Kiwaihu Knolls (2° 00'S., 41° 20'E.), a ridge of coral pinnacles with a least charted depth of 4.5m, lie 2.5 miles SE of Little Head; they are not easily seen and the ridge is steep-to. Halliday Shoal with a depth of 11.6m lies 2.2 miles off the mainland 1.5 miles NE of Kiwaihu Knolls.

Arletts Ledge (1° 55'S., 41° 24'E.), with coral pinnacles having a least known depth of 5.5m, lies 1.2 miles NE of Halliday Shoal.

Simambaya Ledges has several pinnacles of coral and rock with depth of 4.9 to 8.2m; they lay close NE of Arletts Ledge

and extend NE, parallel to Simambaya Island for its entire length. These ledges are steep-to but can usually be seen due to the light sandy bottom over the coral.

Simambaya Island (1° 52'S., 41° 25'E.) lies about 0.7 mile offshore with its S extremity about 6 miles NE of Little Head. It is the largest of the islands along this stretch of coast and has a steep range of hills that rise to a height of 60m. The seaward edge of the island is steep-to and is usually fronted by breakers.

Lama Shaaqa (1° 39'S., 41° 35'E.), a small group of islets, lie on the coastal reef 1 mile SW of Raas Kaambooni.

Raas Kaambooni (1° 39'S., 41° 36'E.) is a low rocky promontory slightly raised in the center. On the S side of the rise there is a red sandy patch. The rocky face of the headland, when seen from the E, appears to have a narrow sandy cove in the center.

Raas Kaambooni to Qooriga Kismaayo

6.29 Isole Giuba is the collective name for a chain of islands, islets and rocks which front the coast between Raas Kaambooni and Ras Ogaden (0° 27'S., 42° 29'E.), the SW entrance point to Qooriga Kismaayo, 90 miles NE. Few of these islands lie more than 2.5 miles offshore and from a distance they may be mistaken for the mainland which is generally flat. Most of the islands, which show up well on radar, rise up abruptly from a narrow connecting line of reefs marked by breakers.

To safely pass Isole Giuba, vessels should keep seaward of the 100m curve, which lies about 4 miles offshore.

Within the 40m curve, about 1 mile closer inshore, the depths are irregular with numerous ridges and patches of coral having depths less than 5m; there is, however, usually a clear channel, with depths more than 18m about 1.5 miles seaward of the islands.

6.30 Ras Gome Lahecua (1° 32'S., 41° 39'E.) is a bold, round topped, rocky hill, located above a sandy beach; it is the second most conspicuous object on this coast.

Just S of Ras Gome Lahecua there are some white sandy patches which at times show well from seaward, and just N of the point a short range of hummocky rocks, 30m high, stand close to the beach.

Raas Warafoole (1° 24'S., 41° 44'E.), a projection of land, is located 9 miles NE of Ras Gome Lahecua. A hill, with a ridge of cliffs below its summit, stands on the point; it is most noticeable when bearing about 310°.

Collinadelle Rose (1° 22'S., 41° 45'E.), 2.2 miles N of Raas Warafoole, 1 mile inland, is flat-topped and slopes gradually to the S and steeply to the N.

It shows above the coastal range of hills and is a conspicuous landmark for a considerable distance. Rozier Peak, 1.5 miles NE of the hill, is insignificant, but the locality may be identified by a huge haycock-shaped black rock standing between it and the beach.

Buur Buurdheere (1° 15'S., 41° 50'E.) is 43m high; when seen from the S it has a slight dip in its summit.

6.31 Buur Gaabo (1° 12'S., 41° 50'E.) is entered between Ras Gowlaani and Ras-Kaamba Kiyaamba, a beacon stands on the extremity of Ras-Kaamba Kiyaamba.

Tides—Curr ents.—The incoming tidal runs at a velocity of 1.5 knots and the outgoing tidal current has a velocity of 2 knots.

Depths—Limitations.—There is a bar across the entrance channel with depths from 6.4 to 8.7m. The depths inside the bar increase to 19m 2.5 miles N of Ras Gowlaani.

Aspects.—Buur Buurdheere rises 0.5 mile NW of Ras Gowlaani. Shimofongo, marked by a beacon, rises to a height of 61m, about 2.3 miles NW Buur Buurdheere.

Anchorage.—Anchorage may be obtained in mid-channel, about 0.4 mile NNW of Kifenni (1° 13'S., 41° 51'E.) in a depth of 16m.

During Northeast Monsoons, small vessels may anchor in Qooriga Kiyaambo, close W of Ras-Kaamba Kiyaambo. Temporary anchorage may be obtained outside the bar, but vessels should be prepared to leave the anchorage on short notice.

Directions.—There are three sets of range beacons, shown on the chart, that lead into Buur Gaabo. These range beacons may be followed to a position about 500m SSW of Gees Yuunda (1° 13'S., 41° 51'E.), when a mid-channel course of 320.5° will lead toward the inner anchorage. The pillar on Gees Yuunda should not be mistaken for any of the range beacons.

Caution.—Breaking reefs extend from Ras Gowlaani to a position close N of Ketu Ketu. Ketu Ketu, a group of islets surrounded by a drying reef, lie about 0.6 mile SSW of Ras-Kaamba Kiyaambo.

An islet, 6m high, lies close SW of the beacon situated on Ras-Kaamba Kiyaambo. A ledge, about 1 mile in extent, lies off the NE side of the entrance; it breaks along its seaward side.

6.32 From Ras-Kaamba Kiyaambo, the coast trends in a NE direction to Raas Ogaden, a distance of about 60 miles.

This entire coast is fronted by a series of islands, islets, and rocks which lie up to 3.5 miles offshore. The 10m curve lies close off some of these dangers, but in other places it lies up to 4.7 miles offshore.

Qooriga Juula (1° 01'S., 42° 00'E.) is a bay that is fronted by islands; it may be entered by vessels with local knowledge. There are depths from 9 to 18m in the entrance, but within the entrance the depths decrease suddenly to 5m.

Between Qooriga Juula and Raas Ogaden there are two anchorages where small ships with local knowledge may anchor; they are Qooriga Jofay, 12 miles NE of Qooriga Juula, and Qooriga Koyaama, 19 miles farther NE.

Raas Ogaden (0° 27'S., 42° 29'E.), the NE extremity of J-sha Kuwaajuule, is the SW entrance point to Qooriga Kismaayo, which is [described in paragraph 7.2.](#)